

Center Title and Acronym: African Center of Excellence in Data Science (ACE-DS)

Host University and Country: University of Rwanda, College of Business and Economics, Rwanda

Center Website Address: <http://www.aceds.ur.ac.rw>

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Primary Thematic Discipline of Center: Applied Statistics

Brief Description of Center:

Data science is a growing area that involves inter-disciplinary collaboration between statistics, economics, business, computer science and engineering. Africa has demonstrated rapid and sustained economic growth over the last decade and recent developments suggest that a focus on data science is timely. The absence of reliable and accurate data, data management systems, and skilled statisticians is a serious constraint to policy making, adequate analysis of development challenges, and monitoring and evaluation (M&E) of interventions. The African Center of Excellence in Data Science (ACE-DS) has been selected and established at the University of Rwanda (UR) in College of Business and Economics (CBE) on 17th October 2016. ACE-DS is a regional center and it combines expertise in statistics, economics, business, computer science, and engineering to use big data and data analytics to solve development challenges. The African Center of Excellence in Data Science (ACE-DS) will address specific development challenges by:

- (1) Offering a research hub for postgraduate students, attracting international expertise and practitioners
- (2) Stimulating collaboration between academics, partners and stakeholders;
- (3) Demonstrating the relevance of the center for innovation, job creation and economic prosperity; and
- (4) Securing resources to stimulate multidisciplinary collaborative international research projects.

The ACE-DS is based in Rwanda and it places southern and eastern regions of Africa at the forefront of an emerging academic field that will encourage collaborative partnerships between academia, government and the private sector. The main activities of the center are post-graduate training, short courses and conducting collaborative applied research. African Center of Excellence in Data Science offers a multiplicity of capabilities to support national, regional, and Africa-wide visions, goals and objectives.

Key Objectives and Expected Outcomes:

ACE-DS will create a new post-graduate program in data science, enrolling 20 Msc students and 8 PhD students per year as well as an overall expansion of short course participants to an average of 30 per year. At the end of the five-year World Bank program, ACE-DS aims to have achieved the following:

- (1) Enrolled 100 MSc students and 40 PhD students of which at least 20% will be regional and 50% female;
- (2) Trained 150 professional data scientists,
- (3) Published 40 peer-reviewed research publications,
- (4) Attract an average of \$0.5m per year in externally mobilized funds,
- (5) Improved research and teaching environment achieved through a Data Lab and cloud-based computing facility.
- (6) International accreditation for a MSc and PhD program in data science;

ACE-DS will transform the appeal and relevance of applied research by showcasing studies and real world solutions with direct benefits for stakeholders in the region. ACE-DS will also serve an important role of helping the region to satisfy the aims of Science Technology Innovation Strategy for Africa (STISA) 2024 by collecting, sharing and analyzing data. It will also provide expertise to measure and monitor the United Nation's new Sustainable Development Goals and the African aspirations for 2063.

Major Accomplishments to Date:

The center has implemented planned activities and the following paragraphs give the major achievements.

- PhD program has started with 25 PhD students. We have received 65 PhD applications and among them 25 were selected. PhD students are distributed as:

7 National female, 12 National male, 1 Regional female, 5 Regional male. 32% of admitted PhD students are female and 24 % are regional.

- MSc program has been developed and approved at Department level, School level and College level. It has been submitted for approval at UR and finally to High Education Council (HEC). We expect to start in January.
- Short courses: consultative meetings with different institutions on needs in short courses have been done and development of short courses has started.
- Partnership and Collaboration with other institutions have started with some institutions (CMU-Africa, NISR,) and we are working on other MoUs and proposals of collaboration.
- Research grants will be advertised soon. Review of existing policies and preparation of calls are almost concluded.
- Twelve publications have been done and are distributed and 6 papers have been published - 3 papers are conference proceedings and 3 papers are book chapters.
- External revenue from admission of PhD students and registration has been generated. We are working proposal for grants.
- Staff exchange and training: Head of teaching at ACE-DS has participated in the training of trainers on use of administrative data for agricultural statistics from September 19-22, 2017 in Tunis, Tunisia.

Primary Regional and Global Partners:

- Makerere University-School of Statistics and Planning
- Carnegie Mellon University (CMU)-Africa
- African Institute of Mathematics and Sciences (AIMS)
- Rochester Institute of Technology (RIT)
- Microsoft
- Esri Deutschland Group GMBH

Senior Faculty	Email Address	Research Area
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